

BIOLOGICAL EVALUATION OF FOREST INSECT  
PROBLEMS ON THE ASHLEY NATIONAL FOREST  
1970

Prepared by : William H. Klein  
Entomologist, Section of Detection and Evaluation

Recommended by: Marlin C. Galbraith  
Assistant Regional Forester, Div. of Timber Management

Approved by : for Vern Hamre, Regional Forester

FOREST INSECT CONDITIONS  
ON THE  
ASHLEY NATIONAL FOREST, 1970

This is a report of forest insect conditions on the Ashley National Forest during 1970. Material for this report was compiled from control records, aerial survey data, and from on-the-ground evaluations. Assisting in the last phase was Forester Darrell Johnson and Forestry Technician Gene Campbell.

The only two important insect problems during 1970 were the mountain pine beetle in ponderosa and lodgepole pine and the spruce budworm (western form) in Douglas-fir. The mountain pine beetle continues its slow attrition of ponderosa and lodgepole pine in and adjacent to Flaming Gorge National Recreation Area on the Manila Ranger District. Increased tree killing occurred on the western edge of the infestation, but static conditions prevailed elsewhere. Control other than by logging is not recommended. The already small and isolated spruce budworm infestation in Dry Creek Canyon dropped to an even lower level in 1970. No significant increase in either size or intensity of infestation is forecast for 1971. A more complete rundown of these insect problems follows:

Mountain pine beetle, Dendroctonus ponderosae Hopk.

The only mountain pine beetle infestation of consequence in 1970 is in portions of Flaming Gorge National Recreation Area on the Manila Ranger District. This area has a long history of mountain pine beetle activity in both ponderosa and lodgepole pine. A review of past records shows that control in ponderosa and lodgepole pine was undertaken in the Manila Area as early as 1931. Since then, in ensuing years, repeated attempts at control utilizing every conceivable technique--fall and burn, fall and spray, and standing spray--have been employed to keep the beetle populations in check. The last control effort was during 1961 to 1964 and covered most of the area presently infested. During that four-year period, upwards of 50,000 trees were chemically treated.

It is possible that these efforts may have reduced the level of tree killing the year following treatment, or even perhaps two to three years longer, but the then accepted philosophy of long term tree protection has now been disproven. Today tree killing of varying intensities exists throughout the entire area.

The location of the present infestation remains essentially the same as last year--along the southern part of the National Recreation Area from Davenport Draw in the east to Hickersen Park in the west (a map of the present infestation and a cartographic history of the infestation from 1967 to the present is appended. This supplements the copy of the 1970 aerial survey map mailed to the forest earlier).

On-the-ground evaluations were made in the infested area during 21-23 October by Entomologist William Klein and Forestry Aid Wallace Murdoch. They were accompanied by Forester Darrell Johnson on October 21 and 23 and by Forestry Technician Gene Campbell on October 22. Evaluation efforts were centered in the areas of most concern. The results of the surveys follow:

| Area         | No. Attacks In |      | Buildup<br>Ratio | Avg. D.B.H. <sup>1/</sup> |      | Infestation <sup>2/</sup><br>Intensity | Trend      |
|--------------|----------------|------|------------------|---------------------------|------|----------------------------------------|------------|
|              | 1970           | 1969 |                  | 1970                      | 1969 |                                        |            |
| Greendale #1 | 34             | 48   | 0. 7:1           | 13.1                      | 11.5 | L                                      | Static     |
| Greendale #2 | 15             | 7    | --               | 12.0                      | 12.3 | L                                      | --         |
| Half Moon #1 | 12             | 74   | .16:1            | 9.8                       | 8.9  | L                                      | Decreasing |
| Half Moon #2 | 18             | 20   | 1:1              | 11.9                      | 10.9 | L                                      | Static     |
| Ute Lookout  | 31             | 33   | 1:1              | 10.5                      | 10.5 | L                                      | Static     |
| Bootleg C.G. | 0              | 0    | --               | --                        | --   | -                                      | --         |

<sup>1/</sup> Weighted Average

<sup>2/</sup> L=Light; M=Medium; H=Heavy

Although the data show a static to decreasing trend throughout the general area, they may not represent the actual trend. There are several reasons for this: first, and most important, the general infestation level was so low that it was difficult to find a sufficient number of old and newly attacked trees to provide a meaningful sample. Secondly, most of the new attacks were "blind" attacks, meaning external signs of attack such as pitch tubes and boring dust were noticeably absent. This could result in an error of omission and bias the sample toward the old attacks. Finally, visibility was hindered on October 22 because of a persistent snowstorm.

Since 1967 the overall infestation level has increased with some year to year variations. Tree killing in mature ponderosa pine north of highway 44 between Carter Creek and Pipe Creek decreased somewhat from that recorded in 1968 and 1969. The infestation in ponderosa and lodgepole pine around Greendale Junction has remained at approximately the same level for the past three years, 1968 to 1970 (figure 1). The only significant increases in lodgepole pine have been north of Spiers Peak and in the Half Moon Park area. A significant increase in tree killing of limber pine occurred in the upper reaches of Lodgepole Creek on a steep, north facing escarpment (figure 2). This infestation, incidentally, was first detected in 1967, but was not mapped in the interim years because of its remote location. Lodgepole pine mortality still persists in many of the drainages visible from the Sheep Creek Highway (figure 3). No new attacks were found in Bootleg Campground.

Practically all of the broods found in the newly attacked trees were in early stages of development. Half-grown larvae were dominant in the thick-barked ponderosa pine but in lodgepole pine only parent adults, their galleries, and eggs were found. Variations were also observed in the rate of tree fading. Near Greendale Junction, some of the ponderosa pines attacked in 1968 that did not fade in 1969, faded this year. Similarly, many of the 1969 attacks were still green and will not fade until 1971. No unusual incidence of natural enemies, such as parasites and predators, that would have a controlling influence were observed.

In 1971 tree killing of lodgepole pine (and ponderosa pine) will increase slightly in the Half Moon Park-Ute Mountain Area but the faded trees will remain widely scattered. These stands contain mixed type and are essentially slow growing and understocked. Most of the larger trees have died during previous mountain pine beetle outbreaks. This, then, and the fact that the average diameter of the recently attacked trees averages roughly 10 inches, indicates that these stands are incapable of supporting, much less maintaining, a high level of tree killing for many more years. Most likely the infestation level will reach a plateau of approximately  $\frac{1}{2}$  tree per acre during the next one or two years, then subside. It is unlikely that the infestation will spread because of the surrounding unsuitable host type. Group killing of lodgepole pine will continue to show up from the Sheep Creek Highway.

As many trees will be killed next year as this year in most of the remaining areas, including Greendale Junction. Mortality will continue to be widely separated with both mature and pole-size ponderosa pine suffering the heaviest damage. The status of the inaccessible infestation in lodgepole pine north of Spiers Peak is unknown.

The outbreak in limber pine in Lodgepole Creek will subside because of a lack of suitable host material.

Control, other than by silvicultural means, is not recommended at this time. Chemical control may reduce beetle numbers momentarily, as it possibly did in the past, but it does not guarantee long term protection. Logging to salvage infested material and trees ultimately threatened is the only feasible course of action. This may not be practical at this time, however, particularly in the Half Moon Park area, because logging of these low volume stands is not economically practical. The possibility of removing "free timber" under Regulation S-24 should be explored.

In areas that are more economically operable, as in the ponderosa pine stands between the reservoir and Highway 44, every effort should be made to convert these stands to a less susceptible state. Most of these trees are large and mature and highly vulnerable to mountain pine beetle attacks. If left unmanaged, many of these trees will eventually be killed by the beetle. These stands cannot be preserved in their present state.

In Greendale Junction there are several large "brood" ponderosa pines (figure 1) north of the Highway and west of the power line. Some local control will be obtained by felling and removing these trees before the brood emerges in late July 1971.

Individual tree protection by the use of preventive sprays cannot be recommended at this time. The chemical Lindane, which has been used successfully in the past, has not been approved for this particular use on National Forest lands. There is no alternative material available. The one recreation site where tree killing will most likely occur will be in Deep Creek Campground.



Figure 1. Stereogram showing the level of tree killing by the mountain pine beetle near Greendale Junction. The large group of faders in the middle of the picture are ponderosa pine.



Figure 2. Stereogram showing a mountain pine beetle infestation in limber pine (and widely scattered ponderosa pine) in upper reaches of Lodgepole Creek. Sheep Creek Lake and Park in background.



Figure 3. Stereogram looking into upper part of Sheep Creek. Mortality is lodgepole pine caused by the mountain pine beetle. Half Moon Park in background. High Uintas on horizon.

Spruce budworm (western form) Choristoneura occidentalis Free.

The already small infestation in Douglas-fir in Dry Fork Canyon that was detected in 1968 declined in both intensity and extent this year. The area of noticeable defoliation dropped from 400 acres in 1969 to only 120 acres in 1970. Feeding was light and there was no permanent damage to the trees. No significant increase in defoliation or size of area affected is anticipated in 1971.